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AUTHOR Fennessey, Gail M.
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GUIDELINES FOR WRITING THE DIRECTOR'S MANUAL FOR A SIMULATION GAME

GAIL M. FENNESSEY

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The Johns Hopkins University

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The Johns Hopkins University

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INTRODUCTORY STATEMENT

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through five programs to achieve its objectives. The Academic Games program has developed simulation games for use in the classroom. It is evaluating the effects of games on student learning and studying how games can improve interpersonal relations in the schools. The Social Accounts program is examining how a student's education affects his actual occupational attainment, and how education results in different vocational outcomes for blacks and whites. The Schools and Maturity program is studying the effects of educational experience on a wide range of human talents, competencies, and personal dispositions in order to formulate -- and research -- important educational goals other than traditional academic achievement. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. The Careers and Curricula program bases its work upon a theory of career development. It has developed a self-administered vocational guidance device and a self-directed career program to promote vocational development and to foster satisfying curricular decisions for high school, college, and adult populations.

This report, prepared by the Academic Games program, provides guidelines for game designers to help them write clear, concise and meaningful manuals to accompany their simulation games.

ABSTRACT

The Director's Manual is an important part of any simulation game. This paper provides an outline that will help the game designer prepare a well-organized and effective manual. Six sections that should be in the manual are discussed: the overview of the game, preparing for the game session, the game session, debriefing the game (the post game discussion), suggestions for repeated plays, and the appendix.

OUTLINE FOR ORGANIZATION

The Director's Manual is the most important component of any simulation game designed for educational purposes. It is the means through which you, the game designer, familiarize the Game Director with the conceptual model and the playing materials of your game; instruct him how to introduce, use, and follow-up the game; and provide him with the information he needs to decide if the game is appropriate for his educational objectives.

The following outline will help you organize the information you include in the Director's Manual:

I. OVERVIEW OF THE GAME
- A. Introduction
- B. Teaching-Learning Objectives
  1. Cognitive Outcomes
  2. Affective Outcomes
  3. Concomitant Outcomes
- C. The Game Model
  1. Theoretical Assumptions
  2. Scenario
     a. Roles of the Players
     b. Goals of the Players
     c. Resources of the Players
     d. Setting of the Game
     e. Sequence of Events
     f. External Factors
- D. Materials for the Game

II. PREPARING FOR THE GAME SESSION
- A. Allocating Time
- B. Determining the Number of Players
- C. Preparing Materials
- D. Setting Up the Game

III. THE GAME SESSION
- A. Introducing the Game to the Players
- B. Playing the Game
  1. Rules (Annotated)
  2. Scoring
  3. Determining a Winner

IV. DEBRIEFING THE GAME: THE POST GAME DISCUSSION

V. SUGGESTIONS FOR REPEATED PLAYS OF THE GAME

VI. APPENDIX

Suggestions for the information you may wish to include in each of the sections are discussed in detail in the following pages. You should develop the Director's Manual in conjunction with the game materials, not as an adjunct to them. By writing the manual as you design the game materials you will force yourself to make explicit your reasons for adopting certain rules, procedures, and materials. In addition, you will be able to test the manual when you test the prototype game materials.

I. OVERVIEW OF THE GAME

In the first section of the manual you should describe in detail the purposes, the conceptual model and the playing materials of the game. This will enable the Game Director to learn about the game, and decide if the game is appropriate for his educational objectives.

A. Introduction. The Introduction should be brief--no more than four or five paragraphs--and should answer in general terms the following questions. Each question can be answered simply in one or two sentences.

1. For how many players, and what age or grade levels, is the game designed?

2. What pre-requisites (i.e. background, skills, etc.) are needed to play the game?

3. What is the purpose of the game--teaching, training, theory building?

4. What is the general theory embodied in the game model?

5. What concepts are emphasized in the game?

6. Why did you decide to design the game? That is, why do you think the game is the best medium for presenting the concepts? What research findings led you to conclude that a game might be more effective than other techniques?

7. Is the game an integral part of a curriculum unit? If not, in what types of curriculum units (courses) do you suggest the game be used?

B. Teaching-Learning Objectives. The Objectives section describes the outcomes the game is designed to produce. These may be stated generally in paragraph form, or specifically in itemized form. You should give the Game Director some idea of the understandings, facts, attitudes, skills, etc., the players should learn as a result of playing your game. In your discussion of the objectives, you might consider the following:

1. Cognitive Outcomes. What main ideas, concepts, generalizations, relationships does the game teach?

2. Affective Outcomes. What behavioral and attitudinal changes does the game promote?

3. Concomitant Outcomes. What skills, incidental to the primary objectives of the game, are developed and practiced by playing the game? (For example, computational skills.)

C. The Game Model. This is perhaps the most important section in the Overview of the Game. It is here that you convey to the Game Director your view of that part of the real-life situation you have attempted to simulate. His understanding of the conceptual base of your game will influence considerably the kinds of "on the spot" decisions he makes during the play of the game. You will want him to be familiar with your assumptions so that he will interpret the rules and procedures of play to reflect accurately your ideas. Since a game is a simplified, abstract, dynamic representation of real-world phenomena, you should be careful to specify precisely those elements which have been abstracted and included as well as those which have been excluded from your game. Both you and the Game Director should be aware of the kinds of behavior the actors in the real-life situation are assumed to exhibit, given their motivations and resources. In communicating your ideas to the Game Director, it might be helpful to consider the following questions:

1. Theoretical Assumptions.

   a. Is your game based on a generally known and widely accepted theory? If so, what is the theory?

   b. What hypotheses have you formed and what personal

assumptions have you made about the behavior of the actors in the real-life situation? What observations, or background reading, led you to these conclusions?

c. What elements of the real-life situation have you included in the game? What elements have you excluded? What are your reasons for making these choices?

2. Scenario.

a. Roles of the Players.

1. What actors in the real-life situation are represented by the players in the game? Do all players represent equivalent actors? (For example, legislators.) Or, do the players represent different actors? (For example, some players represent teachers; some, students; some, principals, etc.)

2. How much structure is provided by the roles? Does the player's profile specify exactly how he must act in certain situations? Or, does the player have considerable latitude in determining how he will act?

3. Does the game require some players to take on roles that do not have real-life counterparts--that is, game roles? (For example, does the game require a scorekeeper, a game coordinator, etc?)

b. Goals of the Players.

1. What motivates the players to act? That is, what are their objectives in the game?

c. Resources of Players. What do the players have that they can use to help them achieve their goals? (For example, money, votes, goods, information, etc.) Are these resources available initially? Or, are they acquired as the game progresses?

d. Setting of the Game.

1. Location.

a. What is the geographic setting simulated (i.e. specific or general locale)?

b. What is the organizational body simulated?

2. Time.

a. In what time period (i.e., past, present, future) or year is the game set?

b. What period of time does each round represent?

c. What time period does a game represent?

e. Sequence of Events.

1. What is the order of play?

2. How does the order of play reflect the theoretical assumptions?

f. External Factors. The external factors are those elements of the real situation that are not directly controlled by the actions and interactions of the players, but are included through other game materials and influence to some degree the outcome.

1. What external factors are included in the game?
2. How are they represented? (For example, chance devices)
3. What probabilities did you use to construct the materials representing the external factors? Why?

D. Materials for the Game. In this section you should enumerate all the materials required for the game; describe in detail the appearance, purpose, and quantities of the materials included in the game package and whether or not you have included a copy, or facsimile, in the Appendix. Also, indicate the items the Game Director should supply. (For example, pencils, scratch pads, etc.)

II. PREPARING FOR THE GAME SESSION

Frequently, Game Directors will attempt to administer a game session without preparing for it in advance. You have little control over the amount and kind of preparation the Game Director will make. However, as a safeguard it is useful to introduce this section by cautioning the Game Director to familiarize himself completely with the Director's Manual and the game materials before he attempts to administer the game session. Also, you might suggest that the Game Director actually play the game

(with family or friends) so that he will have a working acquaintance with the game materials and sequence of play, and will be sensitive to unclear directions or situations for which he may have to interpret or supply a rule. This experience will make him better able to introduce and administer the session, and will give him the confidence to cope with the unexpected situations so characteristic of games.

A. Allocating Time. The Game Director will need to make adequate time allocations for pre-game preparations, the game session, and the post-game discussion. It will be helpful if you give him an estimate of how long it will take him to:

1. Train assistants. If your game is difficult for one person to administer by himself, you might suggest that the Game Director train a few persons to assist him during the session. Prior to the game session, he should meet with his assistants to acquaint them with the game materials and sequence of activities; and, if possible, to play the game.
2. Prepare the game materials and set up the game.
3. Introduce the game to the players.
4. Play the game.
5. Conduct the post-game discussion.

B. Determining the Number of Players. Most games are designed to accommodate a minimum and a maximum number of players. However, depending upon the structure of the game, the Game Director may

need some advice about assigning players to roles when there are fewer or more players than the recommended maximum.

1. When there are fewer players than the recommended maximum and all the players play equivalent roles, it is unlikely that the Game Director will need to make any adjustments. However, if the players assume different roles, you should specify which roles (or profiles) should be removed and the order in which they should be removed. This advice would be essential if the players are to be organized into teams whose role composition differs.

2. When there are more players than the recommended maximum, you may wish to suggest one of the following ways to handle the extra persons:

   a. Assign two persons to one role. This has advantages, especially in games designed for younger children. The two individuals will have to decide collectively the strategy they will follow; and, at decision points, agree upon a course of action. By verbalizing his ideas, the player may become more aware of the reasons underlying his actions and, as a result, may achieve a broader understanding of his experience than would be possible if he were to play the role alone.

   b. Have the extra persons observe the game to note the behavior of individual players and its effect on the

group process. Games are dynamic and players frequently are so immersed in their own roles that they lose sight not only of the way they respond to particular events, but also of the actions of other players. Having such information presented during the post-game discussion may help the players gain greater insight into the factors which contributed to the game's outcome. In addition, the observers can lead the post-game discussion, thereby relieving the Game Director of this responsibility and, perhaps, fostering a greater degree of solidarity among the group.

C. Preparing Materials. If the Game Director needs to do such things as duplicate materials, cut out cards, assemble tokens, prepare player's folders, count out money, make charts, etc., prior to the game, you should warn him. Describe what he must do and, if necessary, how he should do it.

D. Setting Up the Game. If you want to make sure that the Game Director overlooks nothing, you should give him explicit instructions regarding the way the room and playing surfaces should be arranged. Novice Game Directors, in particular, will welcome and appreciate a checklist they can follow. The Game Director's first step should be to check the game materials to make certain that he has a complete set. Next, he should arrange the room where the game will be played. You should include a diagram, and a written explanation, of how the

tables (desks) and chairs should be placed. Then, you should tell him where and how the players' materials and the undistributed materials should be placed. Finally, mention what information, or directions, should be written on a chalkboard.

III. THE GAME SESSION

Far too often, a Game Director has a nagative experience with a simulation game because the Director's Manual was incomplete and did not supply him with all the information he needed to administer the game session. It is crucial, therefore, that before the game is considered ready for general distribution the directions in this section of the manual have been tested with persons representative of those who will ultimately direct game sessions. If it is not possible for you to have a draft of the entire manual completed for the first tryout session of your game, you should make every effort to have this section written. By so doing, you can have another person administer the game; otherwise, you will be the only person sufficiently familiar with the mechanics of the game to administer it. If you are freed of this task, you can concentrate on noting the revisions required in the structure of the simulation game, the game materials, and the instructions for the game session. When you observe the session you are in a better position to determine if the vocabulary used to introduce the game is appropriate for the target population; to note the questions which are raised regarding the rules and order of play; to listen for the points at which the players become confused either because they have been given information too soon

or because they need additional information; and to decide whether or not the Game Director has enough information to make accurate interpretations of the rules and to supply appropriate judgment decisions should it become necessary for him to do so.

A. Introducing the Game to the Players. The quickest way to dampen players' enthusiasm for a game is to force them to listen to a long list of directions and rules. It is generally the case that, initially, the players can choose between only one or two options; presenting them with several choices, irrelevant to them at the start of the game, will only confuse them. The easiest way to teach players how to play the game is to have them begin to play it immediately.

The first time the players play the game they will probably learn only the procedures (not the concepts you have listed for the game's teaching-learning objectives). Consequently, you should prepare the introduction of the game so that the first session or the first few rounds are for "practice." In either case, you should write a "script" for the Game Director to follow--that is, write exactly what you want him to say and indicate the points at which he should hold up materials he is describing and when he should pause to let the players look at materials or count tokens, etc.

If your game is one in which the rounds do not repeat the same steps, then you will probably want the players to play an entire

game for practice. If, on the other hand, your game is one in which the same sequence is repeated in each round, you will probably want the players to play only one round for practice.

You can choose to introduce the game in one of two ways. One way is to present each step and have the players decide for themselves how they will act; the other is to program the game and tell the players what their decisions are. The latter will require more effort on your part and may not be feasible for all games.

If you select the first alternative, then, at the end of the practice round, you should direct the Game Director to have the players redistribute the materials so that they start with the same set they had at the beginning of the practice round. It will be easier for the Game Director to do this if you repeat the list of materials and how they should be distributed and arranged. By making a fresh start, the players can benefit from the mistakes they made while they were learning how to play the game; otherwise, they would be penalized throughout the game for errors caused by ignorance.

If you choose to program the first round, the players can begin the second round without redistributing the materials. However, you must be careful to plan the decisions during the programmed round so that all the players whose scores are to be compared at the end of the game begin the second round with equivalent resources.

B. Playing the Game. In designing the game, you may have allowed for the players to perform their actions simultaneously, sequentially, or a combination of both. If the players go through all or some of the steps in sequence, you may want to neutralize the advantages of a final position in the sequence by having the players take turns in being player number 1. It is also possible that some players will do something that is not covered by a rule. Often, such actions are creative and realistically reflect what the actors in the real-life situation would do, given the same conditions. But, some Game Directors will inhibit the players by confining them to only the actions specified in the sequence or order of play. Therefore, you might want to advise the Game Director to allow the players to do anything not specifically prohibited by the rules.

In addition to these hints, you should also include the following in this section for easy reference by the Game Director:

1. The Rules (Annotated). If sets of rules are distributed to the players, you should reproduce them for the Game Director. In addition to stating the rule, you should explain how the actions should be carried out; the constraints, if any, on actions; and the penalties to be imposed when a player violates a rule.
2. Scoring. Describe the procedures for scoring a round and for recording the scores. You may also want to suggest that the Game Director write the scores on a chalkboard or a chart so that all the players can read them.

3. Determining A Winner. Describe how the game is ended and how a winner is determined. If your game is one in which the players will use end game strategies unrealistic to the process simulated, you may want to suggest a means for ending the game which will discourage end game strategies. (For example, the roll of a die; a set of cards from which the Director removes one card several rounds in advance of the maximum to be played--one card would say "End the Game"; the others, "Continue with the Next Round",; etc.)

IV. DEBRIEFING THE GAME: THE POST GAME DISCUSSION

One question unanswered by previous research with simulation games designed for instructional purposes is whether or not the game is a sufficient condition for some players to learn what the game purports to teach. In many situations, some players do learn from the game, while many learn from the discussion which follows the game.

Through discussion of the particular events in the simulation game, the player should be able to better understand these events and thus understand the general principles illustrated. Used in conjunction with related readings, the activities become a mechanism for transfering these generally stated principles to other situations. You may want to organize your questions to focus first on the experiences the players had in the game; next on the players' evaluation of the realism of the game model; and, finally, on the principles the game is designed to teach.

V. SUGGESTIONS FOR REPEATED PLAYS OF THE GAME

There are several reasons for including this section in the Director's Manual. In the first place, the first time the players play a game their learning may be limited to learning how to play the game, or their learnings may differ. If a game is played only once, its potential as a teaching tool may not be fully realized. Secondly, games are expensive commodities; you should make it possible for a Game Director to use your game several times. And, finally, as the game designer, you have spent many hours designing, improving and perfecting your game; undoubtedly, you will want it to be used, not shelved after one trial!

Each time the game is played, the players should have some purpose for playing it. You might suggest the following ideas for subsequent sessions:

A. Have the players discuss the strategies they used in the game and play the game again to either repeat the same strategy or test a different strategy. Then, the players should compare the outcomes and discuss why they are similar or different.

B. Have the players draw on their experiences in the game to formulate hypotheses about the real-life situation. Then, play the game again to validate their "theories."

C. Have the players critique the game model and, drawing on observations of real-world phenomena, redesign the game to incorporate elements that were excluded from your game model.

D. Have the players act as participant observers or as observers to collect data about the behavior of other players. Since

simulation games are constructed to channel the players' behavior so that similar behavior is exhibited across sessions, the game can be used to develop observational skills and techniques.

E. Capitalize on the game's motivational effect and use it to practice the skills (for example, computational skills) which may be required to play the game successfully.

VI. APPENDIX

Throughout the Director's Manual you will have referred to the playing materials. In the Appendix you should include copies, or facsimiles, actual size or reductions, of all the game materials. This will make it easier for the Game Director to become acquainted with the materials when he reads the manual, and he will not be required to have a copy of the game with him to do so.